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EXAMINER
PATTERSON KENDRICK

ART UNIT	PAPER NUMBER
2857	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/996,776

Applicant(s)

Reiser, Et. Al.

Examiner

Kendrick P. Patterson

Group Art Unit

2857



☒ Responsive to communication(s) filed on 23 Dec 1997

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-21 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-21 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-21 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Referring to **Claims 1-12**, applicants claim a process for training belief functions that may be implemented by a traditional computer or workstation terminal. (see Specification, page 4, lines 27-29). To be statutory, the claimed computer-related process must be limited by the language in the claim to a practical application within the technological arts. Claims 1-12 are not confined to the internal operations of a computer and do not teach how a computer would achieve a practical operation. It is conceivable that Claims 1-12 may be practiced by a human operator with or without the aid of a programmable apparatus. As such, Claims 1-12 represent abstract ideas without a practical application.

Referring to **Claims 13-21**, applicants claim an apparatus for learning belief functions. The claimed apparatus consists of a signal processing unit which may be embodied by a computer or workstation terminal. (see Specification, page 4, lines 27-79). No other structural limitations are illustrated. In fact, the claimed apparatus encompasses any and every hardware or hardware platform and associated software implementation that performs the claimed process. Since Claims 13-21 reveal no new and useful machine, article of manufacture, or composition of matter, the claimed apparatus must be evaluated on the basis of the underlying process. The underlying process, as depicted in Claims 1-12, represents a non-statutory abstract idea; consequently, Claims 13-21 also represent a non-statutory product.

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Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicants regard as their invention. Evidence that Claims 1-12 fail to correspond in scope with that which applicants regard as the invention can be found in the "Description of Preferred Embodiments." In said Description, applicants have stated that the method of training belief functions is executed by a signal processing installation (see Specification, page 4, lines 27-29), and this statement indicates that the invention is different from what is defined in the claim(s) because Claims 1-12 are not limited to a method executed by a signal processing installation or otherwise expressed in the technological arts.

5. Claims 13-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Claim 13 provides for the use of belief functions, including (i) creating a set of probability assignments; (ii) creating combinations of said probability assignments; (iii) measuring a error present in said probability assignments and combinations of same; (iv) calculating updates of said probability assignments and combinations of same; and (v) modifying said probability assignments and said combinations of same using said updates. However, since the claimed, underlying computer-related method/process is not expressed as a practical application in the technological arts, it is unclear what method/process applicants are intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced in the technological arts. Since Claims 14-21 depends from Claim 13, the underlying process in Claims 14-21 is also considered to be indefinite.

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Claim 13-14 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-21 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 1-21 describe a computer-related invention for training belief functions. The claims delineate a series of sub-processes, such as creating probability assignments, combining the probability assignments, measuring error, calculating updates, etc. The disclosure however does not enable a skilled artisan to configure a computer (i.e., signal processing unit) to possess the requisite functionality, and where applicable, interrelate the computer with other elements to yield the claimed invention, without the exercise of undue experimentation.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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9. Claims 1 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Nigawara et. al. (US 5,493,729).

Concerning applicants' **Claim 1**, Nigawara et. al. discloses a method of training belief functions, comprising of the following steps:

- a. gathering a set of information (Figure 1, element 4010);
- b. creating probability assignments based on said set of information (Column 6, lines 59-67);
- c. creating combinations of said probability assignments (Column 10, lines 28-59);
- d. measuring an error present in said probability assignments and said combinations of probability assignments (Column 10, lines 61-65);
- e. calculating updates of said probability assignments and said combinations of probability assignments based on said error (Column 13, lines 49-67); and
- f. modifying said probability assignments and said combinations of probability assignments using said updates (Column 9, lines 1-3).

Concerning applicants' **Claim 13**, Nigawara et. al. discloses an apparatus for learning belief functions, comprising:

- a. a signal processing unit (Figure 1, element 1000); and
- b. a set of information sources (Figure 1, element 6100) which couple a set of information (Figure 1, element 4010) to said processing unit; said processing unit programmed to:
 - I) create a set of probability assignments based on said set of information (Column 6, lines 59-67);
 - ii) create combinations of said probability assignments (Column 10, lines 28-59);
 - iii) measure an error present in said probability assignments and said combinations of probability assignments (Column 10, lines 61-65);

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- iv) calculate updates of said probability assignments and said combinations of probability assignments based on said error (Column 13, lines 49-67); and
- v) modify said probability assignments and said combinations of probability assignments using said updates (Column 9, lines 1-3).

Concerning applicants' **Claims 8-9 and 17-18**, Nigawara et. al. discloses a method/apparatus for training/learning belief functions, wherein said step of measuring error comprises a comparison between said probability assignments (or combinations of probability assignments) and a known desired result (Column 8, lines 52-61).

Concerning applicants' **Claims 10-11 and 19-20**, Nigawara et. al. discloses a method/apparatus for training/learning belief functions, wherein said step of measuring error comprises a comparison between said probability assignments (or combinations of probability assignments) and a set of characteristics of a desired result (Column 8, lines 52-61).

Concerning applicants' **Claims 12 and 21**, Nigawara et. al. discloses a method/apparatus for training/learning belief functions, wherein said probability assignments are calculated using a gradient-descent rule (Column 17, lines 16-18).

10. **Claims 1-2 and 13-14** are rejected under 35 U.S.C. 102(b) as being unpatentable over Leech et. al. (US 4,754,410).

The signal processing method/apparatus in Nigawara et. al. embodies an expert system; however it is not clear whether the expert system in Nigawara et. al. receives a set of information in the form of rules. However, Leech et. al., like Nigawara et. al., also discloses a signal processing method/apparatus embodied by an expert system. The expert system in Leech et. al. discloses the claimed method and apparatus for training/learning belief functions, wherein the set of information comprises rules (Column 3, lines 25-28).

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11. **Claims 1, 4, 13 and 16** are rejected under 35 U.S.C. 102(b) as being anticipated by Thompson et. al. (US 4,649,515).

Thompson et. al., like Nigawara et. al., discloses a method and apparatus for training/learning belief functions utilizing an expert system. The expert system in Thompson et. al. discloses the claimed method and process, wherein the set of information comprises sensor outputs (Column 3, lines 65-68).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. **Claims 3 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nigawara et. al. in view of Oatman et. al. (US 5,778,157).

As discussed in the above Section 102 claim rejections, Nigawara et. al. discloses a signal processing method/apparatus in the form of an expert system; however it does not expressly teach that the set of information comprises opinions.

Oatman et. al. discloses an expert system wherein the input data is a set of information comprising opinions (Column 7, lines 13-28). It would be obvious to one having ordinary skill in the art at the time the invention was made to input opinion data into the signal processing system of Nigawara et. al. as Oatman et. al. teaches the equivalence of processing opinions in an expert system.

14. **Claims 5-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nigawara et. al. in view of Lemelson (US 5,787,885).

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As discussed in the above Section 102 claim rejections, Nigawara et. al. discloses a signal processing method/apparatus in the form of an expert system; however it does not expressly teach that the set of information comprises non-functional descriptive data, such as the size of an object, shape of an object or heat associated with an object. Lemelson discloses an expert system wherein the input data is presented in the form of such descriptive data (Column 4, lines 25-30). It would be obvious to one having ordinary skill in the art at the time the invention was made to input descriptive data, such as object size, shape and heat, into the signal processing system of Nigawara et. al. as Lemelson teaches the equivalence of processing descriptive data, such as breath samples, in an expert system.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ken Patterson whose telephone number is (703) 305-0650. The examiner can normally be reached on Monday-Friday from 8:00 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow, can be reached on (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.


John Barlow
Supervisory Patent Examiner
Technology Center 2800

kpp
August 28, 1998